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HOUSEKEEPERS' CHAT Tuesday, February 1, 1938.

(FORBROADCAST USE ONLY)

Subject: "QUESTIONS AND ANSWERS." Information from the Bureau of Chemistry and Soils, the Office of Experiment Stations, and the Food and Drug Administration, United States Department of Agriculture.

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With so many different orange beverages for sale nowadays at groceries and soda fountains and all places selling food, it's no wonder that listeners have so many questions about the difference between them.

For example, one listener this week writes: "When I stop at a soda fountain for an orange drink, they often serve me one made by adding water to an orange sirup or concentrate -- 'reconstituted juice' I think they call it. Will you tell me whether this is a substitute for the pure juice squeezed directly from fresh fruit?"

In other words, has *orangeade* the same food value -- the same amount of vitamin C, as fresh orange *juice*? No, orangeade and orange juice are not the same. Orangeade is made by diluting orange juice and adding sweetening. It is a wholesome beverage but does not give you the same vitamin value as thefresh juice.

Not long ago scientists at the Massachusetts Experiment Station tested samples of bottled orange beverages made by adding water to a concentrate and found that they seldom contained more than 10 to 15 percent of orange juice with perhaps a small amount of lemon juice to standardize the acidity. They also found that the very best of this type of beverage contained *less* than one-*fourth* as much vitamin C as fresh or canned orange juice and that most of them contained only negligible amounts.

So the point to understand is that these made-up orange beverages are wholesome. They are on the order of the homemade orangeade you serve for picnics. But in vitamin C they don't rank up to straight juice. On the other hand if properly made they can be better than the artificially colored beverages containing citric acid, citrus flavoring and sugar which give you little else in the way of food value *but* sugar.

You may be interested to know how the manufacturers remove water from orange juice to make these sirups or concentrates. In order to save all possible vitamin C, which is so easily destroyed by the oxygen in air during heating, they do the concentrating under a high vacuum. They heat the juice in a tube from which it shoots into a concentrating pan at a high vacuum. The heat drives three-fourths of the water in the juice off as steam and leaves the juice like a thick sirup. Little or no vitamin C is lost during this process. The advantage of concentrating is that it saves so much in shipping and container costs.

As I said, vitamin loss doesn't occur at the factory during the concentrating. It happens at the other end -- at the bottling plant, or soda fountain, or wherever the water is added to the sirup. Here the air gets in. The water that is added contains air and the process is done out in the air. What's more, if the added water happens to be over-chlorinated city water, the chlorine will destroy the vitamin C.

Then sometimes dealers make the drink too dilute so stretch what vitamin there is too far. If the water that has been driven off is put back in equal measure, 1 gallon of the sirup will make 6 gallons of the beverage. But many dealers use 1 gallon to make 30 gallons. And to this very dilute mixture they add sugar and citric acid and flavoring to make it taste like real orange juice. Such a beverage may be a good-tasting drink, but it lacks the vitamin and natural fruit sugar that pure orange juice contains.

Still another listener inquires about canned orange juice. "Is canned juice as rich in vitamin C as fresh juice?" she asks.

Mr. E. M. Chace, in charge of citrus investigations for the Bureau of Chemistry and Soils, says that the new process of putting up orange juice in a vacuum at pasteurizing temperature allows very little loss of vitamin C. And as long as that canned juice is very fresh or has been stored at a temperature around freezing, you can depend on it for your daily ration of vitamin C. But if the cans of juice stand in a warm room, they gradually stale -- darken in color, change in flavor, and lose vitamin C. After long standing in a warm room they may have lost as much as 25 or 30 percent of the original vitamin.

So the moral of this story is that the best way to make sure of your vitamin C is to keep your canned juice just above the freezing point in your refrigerator. And by the way, this is a good rule for fresh citrus fruit, too. Another point: Squeeze your orange juice just before breakfast rather than the night before so the air won't have a chance to attack the vitamin in the juice -- and also change the flavor.

Other listeners have been asking about frozen orange juice and new grapefruit beverages. If they will listen in tomorrow, they'll hear the answers to these questions.

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